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PERMIT TO CONSTRUCT

**Application Nos. 508900, 508901, 508902
and 508903**

COMPANY NAME: Chevron Products Company

MAILING ADDRESS: P.O. Box 97
El Segundo, CA 90245


EQUIPMENT LOCATION: 324 W. El Segundo Blvd.
El Segundo, CA 90245

BACKGROUND / PROJECT SUMMARY

Fuel Mix Drum V-4540 (D1892 in P21S14) supplies fuel to the Auxiliary Boiler (D2216 in P18S1), No. 2 Crude Unit Heater F-301B (D20 in P1S4), and the Cogen Tran A and B duct burners (D2199 in P17S1 & D2208 in P17S2). The 12 inch outflow line from the mix drum is currently equipped with two emergency pressure relief valves (PRVs) that vent to the atmosphere if the line becomes blocked through closure of the valve at the exit of the line. For safety reasons, Chevron is proposing to connect the outlet of these valves to the Refinery Blowdown Gas Recovery System (P20S10) and LSFO Flare (P20S7). The Refinery Blowdown Gas Recovery System is commonly referred to as the LSFO Vapor Recovery System (VRS), which is how it will be referenced in the remainder of this evaluation.

EQUIPMENT DESCRIPTION:

The proposed permits to construct will be issued in Section H of the Chevron's RECLAIM/Title V Facility Permit. The Cogen Plant Fuel Mix Drum is currently operating under a permit to operate in Section D of the RECLAIM/Title V facility permit. The LSFO VRS and Flare are currently operating under a permit to construct/temporary permit to operate in Section H of the permit. The equipment descriptions and permit conditions that will be included in the RECLAIM/Title V permit are shown below. In these proposed permit pages, new text is indicated by underline and deleted text is indicated by strikeout. For existing permit units, the applicable pages from Chevron's current RECLAIM/Title V permit are contained [in the engineering file](#).

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Section H: Permit to Construct and Temporary Permit to Operate


Description	ID No.	Connected To	RECLAIM Source Type	Emissions and Requirements	Conditions
Process 21: Miscellaneous Petroleum					
System 14: Cogen Plant Fuel Gas Mix Drum System					S13.2, <u>S15.8</u>
KNOCK OUT POT, V4540, MIX DRUM, WITH 2 PRESSURE RELIEF VALVES SET AT 115 PSIG VENTED TO ATMOSPHERE, HEIGHT: 12 FT; DIAMETER: 7 FT A/N: 385243 508900	D1892				
FUGITIVE EMISSIONS, MISCELLANEOUS A/N: 385243 508900	D3692				H23.3

Description	ID No.	Connected To	RECLAIM Source Type	Emissions and Requirements	Conditions
Process 20: Air Pollution Control					
System 7: LSFO Emergency Relief System (Flare)					S7.4, S13.2, S18.7
FLARE, ELEVATED WITH STEAM INJECTION, F-2500, HEIGHT: 175 FT; DIAMETER: 3 FT 6 IN A/N: 482505 508902	C1757				B61.11, D12.14, D323.2, H23.44, H23.46, I1.1
DRUM, V-1198, CRUDE UNIT RELIEF, WITH STEAM COIL, LENGTH: 20 FT; DIAMETER: 11 FT 6 IN A/N: 482505 508902	D1759				
DRUM, V-1290, NAPHTHA HYDROTREATER RELIEF, WITH STEAM COIL, LENGTH: 16 FT; DIAMETER: 5 FT A/N: 482505 508902	D1760				
DRUM, V-1591, VRDS RELIEF, WITH STEAM COIL, LENGTH: 32 FT; DIAMETER: 10 FT 6 IN A/N: 482505 508902	D1761				
DRUM, V-1691, VGO RELIEF, WITH STEAM COIL, LENGTH: 30 FT; DIAMETER: 10 FT 6 IN A/N: 482505 508902	D1762				
DRUM, V-1890, HYDROGEN PLT, H2S RECOVERY, H2 BOOSTER COMPR & PENTANE PLUS PLT RELIEF, WITH STEAM COIL, LENGTH: 21 FT; DIAMETER: 6 FT 6 IN A/N: 482505 508902	D1763				

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Description	ID No.	Connected To	RECLAIM Source Type	Emissions and Requirements	Conditions
KNOCK OUT POT, V-956, THERMAL DISTILLATION RECOVERY SYSTEM, LENGTH: 7 FT; DIAMETER: 2 FT A/N: 482505 508902	D1764				
VESSEL, SEPARATOR, DEGASSER, V-1175, HEIGHT: 19 FT; DIAMETER: 7 FT 1 IN A/N: 482505 508902	D1767				
KNOCK OUT POT, NHT NO. 3, V-1098, LENGTH: 20 FT; DIAMETER: 10 FT A/N: 482505 508902	D2220				E336.1
VESSEL, SEPARATOR, V-2502, PROCESS GAS, HEIGHT: 4 FT 7 IN; DIAMETER: 1 FT 8 IN A/N: 482505 508902	D3028				
FILTER, K-2502, PROCESS GAS, HEIGHT: 1 FT 2.25 IN; DIAMETER: 11.5 IN A/N: 482505 508902	D3029				
KNOCK OUT POT, V-2500, LENGTH IS TANGENT TO TANGENT, WITH STEAM COIL, LENGTH: 25 FT; DIAMETER: 12 FT A/N: 482505 508902	D3840				
FUGITIVE EMISSIONS, MISCELLANEOUS A/N: 482505 508902	D3678			HAP: (10) [40CFR 63 Subpart CC, #5A, 5-25-2001]	H23.3

Description	ID No.	Connected To	RECLAIM Source Type	Emissions and Requirements	Conditions
Process 20: AIR POLLUTION CONTROL					
System 10: REFINERY BLOWDOWN GAS RECOVERY SYSTEM					S7.4, S13.2, S15.5, S15.9, S18.12
KNOCK OUT POT, V-2010, RESID STRIPPER, LENGTH: 10 FT; DIAMETER: 7 FT 1 IN A/N: 482504 508901	D1772				
COMPRESSOR, ELECTRIC DRIVEN, K-2006, TWO-STAGE, RECIPROCATING, 4 MMSCFD A/N: 482504 508901	D4211				E73.8, H23.47 L341.2
COMPRESSOR, ELECTRIC DRIVEN, K-2007, TWO-STAGE, RECIPROCATING, 4 MMSCFD A/N: 482504 508901	D4212				E73.8, H23.47, L341.2

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Description	ID No.	Connected To	RECLAIM Source Type	Emissions and Requirements	Conditions
COMPRESSOR, ELECTRIC DRIVEN, K-2008, TWO-STAGE, RECIPROCATING, 4 MMSCFD A/N: 482504 508901	D4213				E73.8, H23.47, L341.2
FUGITIVE EMISSIONS, MISCELLANEOUS A/N: 482504 508901	D3679			HAP: (10) [40CFR 63 Subpart CC, #5A,5-25-2001]	H23.19

CONDITIONS:

Additions are shown as underlined and deletions are shown as ~~strikeouts~~.

PROCESS CONDITIONS:

None

SYSTEM CONDITIONS:

S7.4 The following conditions shall apply to all refinery operation and related devices from this system:

The operator shall comply with all applicable mitigation measures stipulated in the "Statement of Findings, Statement of Overriding Considerations, and Mitigation Monitoring Plan" document which is part of the AQMD Certified Final Environmental Impact Report dated 09-May-2008 for this facility.

The operator shall maintain records in a manner approved by the District, to demonstrate compliance with the applicable measures stipulated in the "Statement of Findings, Statement of Overriding Considerations, and Mitigation Monitoring Plan" document.

[CA PRC CEQA, 11-23-1970]


[Systems subject to this condition: Process 3, System 1; Process 7, System 4; Process 12, System 28; Process 13, System 10, 11, 12, 13; **Process 20, System 4, 7, 10**, 31]

S13.2 All devices under this system are subject to the applicable requirements of the following rules or regulations:

Contaminant	Rule	Rule/Subpart
VOC	District Rule	1123

[**RULE 1123, 12-7-1990**]

[Systems subject to this condition : Process 1, System 3, 5, 13, 17; Process 2, System 1, 5, 6; Process 3, System 1, 5; Process 4, System 1, 3, 5, 7, 9, 11, 13; Process 5, System 1; Process 6, System 1, 3, 4; Process 7, System 2, 4, 7; Process 8, System 1, 2, 5, 7, 8, 10; Process 9, System 1, 2; Process 10, System 1, 4; Process 12, System 2, 4, 7, 9, 10, 11, 12, 13, 16, 17, 18, 22, 26, 27, 28; **Process 20, System 3, 4, 7, 10**, 11, 12, 14, 18, 19, 23; **Process 21, System 13, 14**, 16, 18]

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S15.5 The vent gases from all affected devices of this process/system shall be vented as follows:

All emergency vent gases from the vapor recovery system shall be directed to the flare system.

This process/system shall not be operated unless the flare(s) is in full use and has a valid permit to receive vent gases from this system.

[RULE 1303(a)(1)-BACT, 5-10-1996; RULE 1303(b)(2)-Offset, 5-10-1996]

[Systems subject to this condition: Process 8, System 9; [Process 20, System 10](#), 37]

S15.8 The vent gases from all affected devices of this process/system shall be vented as follows:

All emergency vent gases shall be directed to the vapor recovery system and/or flare system.

This process/system shall not be operated unless the vapor recovery system(s) and/or flare(s) is in full use and has a valid permit to receive vent gases from this system.

[RULE 1303(a)(1)-BACT, 5-10-1996; RULE 1303(b)(2)-Offset, 5-10-1996]

[Systems subject to this condition: Process 1, System 17; Process 4, System 3 , 5; Process 5, System 1; Process 7, System 7; Process 9, System 1; Process 10, System 4; [Process 21, System 14](#), 16]

S15.9 The vent gases from all affected devices of this process/system shall be vented as follows:

All sour gases shall be directed to the sour gas treating unit(s).

This process/system shall not be operated unless the sour gas treating unit(s) is in full use and has a valid permit to receive vent gases from this system.

[RULE 1303(a)(1)-BACT, 5-10-1996; RULE 1303(b)(2)-Offset, 5-10-1996]

[Systems subject to this condition : Process 1, System 3 , 5 , 13; Process 2, System 1; Process 3, System 1; Process 4, System 1 , 3 , 7 , 9 , 11 , 13; Process 7, System 4; Process 8, System 1; Process 10, System 1; Process 12, System 7; [Process 20, System 4](#), [10](#), 28 , 29, 30, 37]

S18.7 All affected devices listed under this process/system shall be used only to receive, recover and/or dispose of vent gases routed from the system(s) or process(es) listed below, in addition to specific devices identified in the "connected to" column:

Crude Distillation (Process: 1, System: 3, 5 & 13)


Delayed Coking (Process: 2, System: 1 & 5)

FCCU (Process: 3, System: 1 & 5)

Hydrotreating (Process: 4, System: 1, 7, 9, 11 & 13)

Hydrogen Generation (Process: 6, System: 4)

Alkylation (Process: 8, System: 1, 2, 5, 7, 8, 9 & 10)

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Oxygenates Production (Process: 9, System: 2)

LPG Production (Process: 10, System: 1 & 2)

Treating & Stripping (Process: 12, System: 2, 7, 9, 11, 13, 17, 22, 23, 25, 26, 27 & 28)

Sulfur Production (Process 13, System 10, 11)

Air Pollution Control (**Process: 20, System: 10** & 34)

Miscellaneous (Process: 21, System: 13, **14** & 18)

[**RULE 1303(a)(1)-BACT, 5-10-1996; RULE 1303(b)(2)-Offset, 5-10-1996**]

[Systems subject to this condition: **Process 20, System 3, 7, 23**]

S18.12 All affected devices listed under this process/system shall be used only to receive, recover and/or dispose of vent gases routed from the system(s) or process(es) listed below, in addition to specific devices identified in the "connected to" column:

Crude Distillation (Process: 1, System: 3, 5 & 13)

Coking & Residual Conditioning (Process: 2, System: 1)

Hydrotreating (Process: 4, System: 1, 9, 11 & 13)

Hydrogen Generation (Process: 6, System: 4)

Alkylation (Process: 8, System: 2 & 5)

Coker Depropanizer (Process: 10, System: 1)

Treating and Stripping (Process: 12, System: 26, 27, 28)

Sulfur Production (Process 13, System 10, 11)

Vapor Gathering System (Process: 20, System: 18)

Miscellaneous (Process: 21, System: 14)

[**RULE 1303(a)(1)-BACT, 5-10-1996; RULE 1303(b)(2)-Offset, 5-10-1996**]

[Systems subject to this condition: Process 2, System 5; **Process 20, System 10**]

DEVICE CONDITIONS

B61.11 The operator shall not use / combust vent gas containing the following specified compounds:


H₂S greater than 160 ppm by volume

The H₂S concentration limit shall be based on a rolling 3-hour averaging period.

The H₂S concentration limit shall not apply to vent gas resulting from an emergency, shutdown, startup, process upset or relief valve leakage.

[**Rule 1118, 11-4-2005**]

[Devices subject to this condition: C1746, C1749, **C1757**, C1785, C3012, C4116]

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D12.14 The operator shall install and maintain a(n) thermocouple or any other equivalent device to accurately indicate the presence of a flame at the pilot light.

The operator shall also install and maintain a device to continuously record the parameter being measured.

[**RULE 1303(a)(1)-BACT, 5-10-1996; RULE 3004(a)(4)-Periodic Monitoring, 12-12-1997; 40CFR 60 Subpart A, 5-16-2007; 40CFR 63 Subpart A, 5-16-2007**]

[Devices subject to this condition: C1746, C1749, **C1757**, C1785]

D323.2 The operator shall conduct an inspection for visible emissions from all stacks and other emission points of this equipment whenever there is a public complaint of visible emissions, whenever visible emissions are observed, and on an semi-annual basis, at least, unless the equipment did not operate during the entire semi-annual period. The routine semi-annual inspection shall be conducted while the equipment is in operation and during daylight hours.

If any visible emissions (not including condensed water vapor) are detected that last more than three minutes in any one hour, the operator shall verify and certify within 24 hours that the equipment causing the emission and any associated air pollution control equipment are operating normally according to their design and standard procedures and under the same conditions under which compliance was achieved in the past, and either:

- 1). Take corrective action(s) that eliminates the visible emissions within 24 hours and report the visible emissions as a potential deviation in accordance with the reporting requirements in Section K of this permit; or
- 2). Have a CARB-certified smoke reader determine compliance with the opacity standard, using EPA Method 9 or the procedures in the CARB manual "Visible Emission Evaluation", within three business days and report any deviations to AQMD.

The operator shall keep the records in accordance with the recordkeeping requirements in Section K of this permit and the following records:

- 1). Stack or emission point identification;
- 2). Description of any corrective actions taken to abate visible emissions;
- 3). Date and time visible emission was abated; and
- 4). All visible emission observation records by operator or a certified smoke reader.


[**RULE 3004(a)(4)-Periodic Monitoring, 12-12-1997; RULE 401, 3-2-1984**]

[Devices subject to this condition: C1746, C1749, **C1757**, C1785, C3012]

E73.8 Notwithstanding the requirements of Section E conditions, the operator is not required to use all three Refinery Blowdown Gas Recovery System compressors concurrently if: The load on the Refinery Blowdown Gas Recovery System is not sufficient to require all compressors to be online.

[**RULE 1303(a)(1)-BACT, 5-10-1996**]

[Devices subject to this condition: **D4211, D4212, D4213**]

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E336.1 The operator shall vent the vent gases from this equipment as follows:

All vent gases under normal operating conditions shall be directed to the coker blowdown system (Process 2, System 5) or/and refinery blowdown system (Process 20, System 10).

This equipment shall not be operated unless the above blowdown system(s) is in full use and has a valid permit to receive vent gases from this equipment.

[**RULE 1303(a)(1)-BACT, 5-10-1996**]

[Devices subject to this condition: [D2220](#)]

H23.3 This equipment is subject to the applicable requirements of the following rules or regulations:

Contaminant	Rule	Rule/Subpart
VOC	District Rule	1173

[**RULE 1173, 5-13-1994; RULE 1173, 2-6-2009**]

[Devices subject to this condition : D3576, D3577, D3581, D3584, D3586, D3588, D3595, D3610, D3631, D3635, D3640, D3642, D3643, D3644, D3645, D3646, D3649, D3650, D3651, D3654, D3655, D3656, D3657, D3659, D3660, D3661, D3662, D3663, D3664, D3665, D3666, D3667, D3668, D3669, D3670, [D3678](#), D3679, D3680, D3681, D3682, D3684, D3685, D3691, D3692, D3693, D3694, D3760, D3802, D3866, D4086, D4087, D4088]

H23.19 This equipment is subject to the applicable requirements of the following rules or regulations:

Contaminant	Rule	Rule/Subpart
VOC	District Rule	1173
VOC	40CFR60, Subpart	GGG


[**RULE 1173, 5-13-1994; RULE 1173, 2-6-2009; 40CFR 60 Subpart GGG, 6-7-1985**]

[Devices subject to this condition : D3577, D3579, D3580, D3581, D3583, D3587, D3613, D3622, D3634, D3636, D3637, D3638, D3639, D3675, D3676, [D3679](#), D3686, D3803, D3921, D3969, D4085, D4107, D4208]

H23.44 This equipment is subject to the applicable requirements of the following rules or regulations:

Contaminant	Rule	Rule/Subpart
H2S	40CFR60, Subpart	J

[**40CFR 60 Subpart J, 6-24-2008; CONSENT DECREE CIVIL NO. C 03-04650 CRB, 6-27-2005**]

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[Devices subject to this condition: D20, D453, D502, D504, C1746, **C1757**, C2158, C3012, C3493]

H23.46 This equipment is subject to the applicable requirements of the following rules or regulations:

Contaminant	Rule	Rule/Subpart
SOx	District Rule	1118

[**RULE 1118, 11-4-2005**]

[Devices subject to this condition: C1746, C1749, **C1757**, C1785, C3012, C4116]

H23.47 This equipment is subject to the applicable requirements of the following rules or regulations:

Contaminant	Rule	Rule/Subpart
VOC	District Rule	1173
VOC	40CFR60, Subpart	GGGa

[**RULE 1173, 5-13-1994**; **RULE 1173, 2-6-2009**; **40CFR 60 Subpart GGGa, 6-2-2008**]

[Devices subject to this condition: D3261, D4205, D4206, D4208, **D4211, D4212, D4213**, D4300]

II.1 The operator shall comply with all the requirements of the condition and compliance schedule as specified in the variance case no. 831-343, issued on July 22, 2008, in accordance with the Findings and Decisions of the Hearing Board or as subsequently modified by the Hearing Board. The operator shall submit progress reports at least semi-annually, or more frequently if specified in the Findings and Decisions. The progress reports shall contain dates for achieving activities, milestones or compliance required in the schedule of compliance and dates when such activities, milestones or compliance were achieved; and an explanation of why any dates in the schedule of compliance were not, or will not be met, and any preventative or corrective measures adopted.

The variance (or Order for Abatement) referenced in this condition does not affect federal or citizen enforceability of the underlying SIP approved rules for which the applicant is receiving the variance (or Order for Abatement).


[**RULE 3004(a)(10)(C), 12-12-1997**]

[Devices subject to this condition: C1746, C1749, **C1757**, C1785, C3012]

~~**L341.2** Within one year after start-up of this equipment, the following device(s) shall be removed from operation:~~

~~Compressor K-2002 identified by Device No. D1782~~

~~Compressor K-2003 identified by Device No. D1783~~

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Compressor K-2004 identified by Device No. D1784

~~Startup as used in this condition shall mean initial use or operation of the equipment after its installation.~~

~~During the start-up period, the old compressors (D1782, D1783 & D1784) and the new compressors (D4211, D4212 & D4213) shall not be operated simultaneously for a cumulative total of more than 90 days. Records shall be kept to show compliance with this condition.~~

~~[RULE 1303(b)(2)-Offset, 5-10-1996]~~

~~[Devices subject to this condition: **D4211, D4212, D4213**]~~

Note: As verified via email from Mr. Peter Allen of Chevron, these compressors have been physically removed from the LSFO VRS. This condition is no longer required.

FEE ANALYSIS

As shown in the following table, Chevron has paid all applicable fees for all of the subject applications.


Summary of Fee Analysis

A/N	Equipment Description	BCAT/ CCAT	Fee Schedule	Fee Type	Fiscal Year (1)	Fee
508900	Cogen Plant Fuel Gas Mix Drum System	354200 (2) (BCAT)	C	Modification	09-10	\$ 3,244.91
508901	Refinery Blowdown Gas Recovery System	59 (3) (CCAT)	E	Modification	09-10	\$ 5,148.93
508902	LSFO Emergency Relief System (Flare)	92 (CCAT)	F	Modification	09-10	\$ 10,257.62
508903	RECLAIM/Title V Permit	555009 (BCAT)	na.	Facility Permit Amendment	09-10	\$ 1,687.63
				Total		\$ 20,339.09
				Fees Paid		\$ 20,339.09
				Outstanding Balance		\$ 0.00

- (1) Based on the date that the application was submitted.
- (2) The BCAT is being changed from 371950 (Refinery Gas Treating) to 354200 (Fuel Gas Mixing), which is more consistent with the function of this permit unit. It does not perform a treating function.
- (3) The BCAT is being changed from 000524 (Gas Oil Cracking Unit) to a CCAT of 59 (Vapor Recovery Serving Refinery Unit), which is more consistent with the function of this permit unit.


PERMIT HISTORY

A history of previous permits for the subject permit units is contained in the tables below.

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Permit History for LSFO Emergency Relief System (P20S7)

Permit to Construct		Permit to Operate		Description of Modification
No.	Issue Date	No.	Issue Date	
A75857	01/73	M00754	7/21/77	Original construction of this emergency relief system (ERS) consisting of a ground flare as a primary flare with an elevated flare to handle relief loads that were greater than the 50,000 lb/hr capacity of the ground flare. The ERS was constructed to handle process upsets in the following process units: Crude Unit No. 4, Naptha Hydrotreater No. 2, Steam Naptha Reformer, Isomax VRDS, Isomax VGO, H2S Recovery Plant No. 5, and the pentanes plus plant.
160485		D05666	2/8/89	Connection of the emergency PRDs in the Copex Plant, Caustic Treating Plant No. 3, and the vapor recovery compressors (K-1 through K-5) to the LSFO ERS.
212958		D33226	10/25/90	Connection of the Thermal Distillation Recovery System (TDRS) to the LSFO ERS through a K.O drum. Appears that this TRDS was either never constructed or has been taken out of service.
235938	1/01/91	na.	na.	Chevron modified the Alky Units Vapor Recovery System. Previously, relief gases were discharged to two gas holders (T-2010 and T-20202) that were upstream of some Houdry Compressors. If the compressors were unavailable or overloaded, the tanks were vented to the atmosphere. Under this modification, the gas holders were removed and the Alky VRS was tied into the LSFO and FCCU ERSs. Included installation of associated K.O pots and pumps.
301080	4/27/95	na.	na.	Connection of emergency PRDs in the Penex Isomerization Plant (P8S5) and Naptha Hydrotreater No. 3 (P4S13) as part of Chevron's RFG II project. Also removed the connection for the old Alkylation Plant (P4S2), which was removed from service. Include installation of a separator vessel and filter to minimize scaling in the spark arrestor.
336106	2/06/98	na.	na.	Removed the ground flare from operation.
406045	02/18/03	na.	na.	Administrative application. PC AN 336106, permitted the removal of the ground flare but it was not removed from the permit until the flare was removed from service. Since a PO had not been issued with the ground flare removed. Chevron requested the removal. Also included existing K.O pot V-2500 in the permit.
419472	11/04/03	na.	na.	Connection of emergency PRDs in the new No. 6 H2S Recovery Plant (P12S26).
434803	na.	na.	na.	Change of condition application related to the flame monitoring condition (D12.14). Consolidated with AN 454964 for evaluation.
454964	8/09/06	na.	na.	Heavy Crude Project: Connection of emergency PRDs in the new No. 6 H2S Plant Amine Regeneration Unit (P12S27).
482505	5/14/10	na.	na.	PRO Project: Connection of emergency PRDs in the new Sour


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Permit to Construct		Permit to Operate		Description of Modification
No.	Issue Date	No.	Issue Date	
				Water Stripper (P12S28), SRU No. 73 (P13S10), and TGTU No. 73 (P13S11).
508902	na.	na.	na.	Connection of a vent line from two existing emergency PRDs on the Cogen Fuel Gas Mix Drum (P21S14) that are currently permitted to vent to atmosphere.

Permit History for the Refinery Blowdown Gas Recovery (P20S10)

[Ref.: AN464817, etc, Eng'g Evaluation dated 7/05/07 by E. Ruivivar]

Permit to Construct		Permit to Operate		Description of Modification
No.	Issue Date	No.	Issue Date	
9152	4-8-54			Modification to connect additional vent streams. Note: No records found when original P/O was issued.
A5252, A16700, A5666, A8601, A12519, A51775	-- -- 4-14-59 -- -- --	-- -- -- 16426 -- --		Modifications to connect additional vent streams.
A68367	--	P-49866		Modification by replacement of 1 st stage cylinder of K-202 compressor and the addition of a condensate drum & PRV connection to the FCCU flare.
A75078	--	P-54448		Modification by addition of service to No. 3 caustic treating plant and to a waste gas compressor station or additional vent streams.
C-12975	--	M03864	4-18-78	Minor modification to include listing of fuel gas K.O. drum and filter in the permit, and also the alteration of the numbering to the system.
C20468		M24849	5/12/82	Modification by the replacement of pump P-2010 and removal of compressor K-20.
421284	na.	F70108	8/04/04	Modification of Condition S18.12 to allow this vapor recovery system to receive vent gases from the new No. 6 H2S Recovery Plant (Process 12, System 26).
464817	7/10/07	na.	na.	Replacement of the three Houdry Compressors @ 2 MMSCFD with three new larger compressors at 4 MMSCFD each..
482504	5/14/10	na.	na.	PRO Project: Connection of PRDs in the new Sour Water Stripper (P12S28), SRU No. 73 (P13S10) and TGTU No. 73 (P13S11).
508901	na.	na.	na.	Connection of a vent line from two existing emergency PRDs on the Cogen Fuel Gas Mix Drum (P21S14) that are currently permitted to vent to atmosphere.

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Permit History for Cogen Plant Fuel Gas Mix Drum System (P21S14)

Permit to Construct		Permit to Operate		Description of Modification
No.	Issue Date	No.	Issue Date	
230312	na.	D37404	4/9/91	First permit for the subject fuel mix drum, which had previously been exempt from permitting requirements per Rule 219.
385243	na.	F64391	11/5/03	Added "WITH 2 PRESSURE RELIEF VALVES SET AT 115 PSIG VENTED TO ATMOSPHERE" to the equipment description for the fuel mix drum (D1892). These are existing PRVs that had been left out of the permit.
508900	na.	na.	na.	Connection of a vent line from two existing PRDs, which are currently permitted to vent to the atmosphere, to the Refinery Blowdown Gas Recovery System (P20S10) and LSFO Flare (P20S7).


COMPLIANCE RECORD REVIEW

[Appendix A](#) lists the NCs and NOV's issued to Chevron since January 1, 2008. There are no ongoing violations for any of the equipment affected by this project.

The LSFO Flare is included in a variance under Hearing Board Case No. 8313-43. This variance covers certain monitoring requirements of District Rule 1118, which was amended in November of 2005. Subsection (g)(3) of the amended rule specifies that owners or operators with flares subject to the rule shall install and operate a flare monitoring system (FMS) by July 1, 2007 to perform monitoring and recording of the parameters specified in the second section of Table 1 of the rule. This monitoring includes gas flow, gas higher heating value (HHV), and total sulfur concentration (TSC) of the gas. Subsections (g)(3) and (j)(1)(C) contain performance specifications for the monitors. Rule 1118(j)(1)(C) also requires that the accuracy of the flow meter be verified annually according to manufacturer specifications. Additionally, Rule 1118 contains reporting requirements that are based on these monitoring requirements.

At the time of the rule adoption in 2005, technical challenges and issues related to feasibility, reliability, maintainability, accuracy, and safety of the HHV and TSC analyzers had the potential to delay implementation of the specified monitoring systems. Due to these known issues, the AQMD Governing Board adopted a resolution directing AQMD staff to work with the Western States Petroleum Association and its refiner members to resolve outstanding issues. Due to the analyzer related delays, each of the refineries requested and was granted a variance to the requirement to continuously monitoring TSC and HHV by July 1, 2007. The variances gave the refineries until September 1, 2008, to complete the design, acquisition, and installation of the required analyzers

Pilot projects for the development of TSC and HHV analyzers were completed in March 2008. Based on a determination that the pilot analyzers demonstrated compliance with the technical requirements of Rule 1118, the AQMD approved the tested TSC and HHV analyzers on May 20, 2008. Since the analyzer approval was given later than expected, the refineries petitioned for a modification and extension of the variance. The Hearing Board granted an extension of Chevron's variance (Case No. 8313-43) until June 24, 2010. Condition I1.1 has been added to

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the affected equipment in section D and H of the permit requiring the operator to comply with all the conditions of the variance including the submittal of progress reports.

Under the increments of progress for the variance, Chevron was to install and test the TSC and HHV analyzers on the LSFO Flare by February 4, 2010. Chevron performed the certification testing in November and December of 2009. The certification test report was delivered to the District on February 3, 2010.

PROCESS DESCRIPTION:

Cogen Plant Fuel Gas Mix Drum System (Process 21, System 14) (AN 508900)


The Cogen Plant Fuel Gas Mix Drum System consists of the V-4540 fuel gas knock-out/mix drum, which has an average operating pressure of 75 psia, and two heat exchangers, E-4540A and E-4540B. Refinery fuel gas is supplied to the Cogen A & B duct burners, the Auxiliary Boiler, and #2 Crude Unit heater F-301B from the V-4540 fuel drum. The fuel drum receives refinery fuel gas (RFG) from the north loop of Chevron refinery fuel system. This loop normally receives refinery fuel gas from the #2, #5, and #6 H2S plants. If necessary, it can also receive RFG from #4 H2S, but this is not the usual operation. The V-4540 can also receive vaporized butane thru E-540A and vaporized propane thru heat exchanger E-540B. A simplified flow diagram is contained [in the engineering file](#).

The subject 3" inlet by 4" outlet PRVs, which have a set pressure of 115 psig, are located on the 12" outflow line for the fuel drum. Vent gas from the PRVs, which is currently vented to the atmosphere in the event of a blockage of the 12" outflow line, will be directed to the V-3670 Cogen LPG Relief Drum following the proposed modification. Vent gases from this relief drum feed through the V-217 LPG Relief KO Drum, which is located in the Alky Unit VRS, to the LSFO VRS/Flare relief header.

LSFO Emergency Relief System (Flare) (Process 20, System 7)(AN 508902) and Refinery Blowdown Gas Recovery System (Process 20, System 10)(AN 508901)

As seen in the simplified flow diagram [in the engineering file](#), PRDs and maintenance vents from the following process units are currently connected into the LSFO VRS/Flare relief header:

- No. 4 Crude Unit
- LSFO Naphtha Hydrotreater and Naphtha Hydrotreater No. 3 (Plant 10)
- Penex Isomerization
- Liquid Propane Distribution System (LPD)
- Vacuum Gas Oil Desulfurizer (VGO)
- Vacuum Resid Desulfurizer (VRDS)
- Nos. 5 and 6 H2S Plants
- Steam Naphtha Reformer Hydrogen Plant
- Alkylation Feed Fractionation Unit
- No. 3 Amine and Caustic Treater
- Cogen Unit
- No. 3 Amine and Caustic Treater
- Proposed SWS No. 68 (PC issued 5/14/10)
- Proposed SRU/TGTU No. 73 (PC issued 5/14/10)

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The LSFO Emergency Flare system was originally installed in 1973 to handle emergency waste gas releases in the event of a general power failure or process upset in the process units that are connected to the relief header. Schematics of the LSFO Flare System and the LSFO VRS are contained in the [engineering file](#). The LSFO Flare and VRS are interconnected with the FCCU and Alky Flares and VRSs. The flares are interconnected so that one of the flares can be shutdown for maintenance or repairs without shutting down all of the equipment connected to the flare. The valves to switch flow from one flare to another are manual.

The main relief header is a 36 inch header that connects into the LSFO Flare knock drum (V-2500). A 42 inch line goes from the knockout pot to the base of the flare. The base of the flare contains a 64 inch water seal to maintain back pressure on the flare header. Relief gases will only flow to the flare if the pressure on the relief header exceeds 64 inches of water column (~ 2.3 psi). The LSFO VRS is designed to keep the relief header pressure below 64 inches WC until the capacity of the three compressors is exceeded. It includes three electrically driven reciprocating compressors that operate in parallel with each other. The VRS was recently upgraded by the replacement of three compressors (K-2002, K-2003 and K-2004) with a capacity of 2 MMSCFD each by three compressors (K-2006, K-2007 and K-2008) with a capacity of 4 MMSCFD each. The K-2005 compressor in the Coker Blowdown System (Process 2, System 5) functions as a backup compressor. The compressed gas from the VRS is sent to the No. 4, No. 5 and/or No. 6 H2S Plant(s).

The compressors can be operated independently or concurrently at any given time on “as needed” basis depending on the volume of gases available for recovery. They are operated under automatic “spill-back” control based on various pressure settings that correspond to specific gas flow rates. If the gas flow into the first compressor is too low, a slip-stream from the compressor discharge stream is recycled back to the compressor suction to prevent the compressor from running dry. If the gas flow into the relief header exceeds the capacity of the first compressor, the second compressor is put into operation. A slipstream for the discharge stream of the second compressor is recycled back to the suction side of the compressor until the flow to the compressor reaches a certain level. The third compressor is put into operation if the capacity of the first two compressors is exceeded.

The flare stack is a freestanding stack fitted with a Flaregas FS Type tip, which is equipped with 100 “flarejectors”. This cluster of “flarejectors” are designed to provide thorough mixing of steam, air, and gas. The 150 psi steam that is supplied to these “flarejectors” aspirates air and gas through the “flarejectors”. The upper section of the flare tip has a conical shape with a maximum diameter of 68 inches. The flare stack is equipped with a “flarex” (molecular) seal. The stack is continuously purged with natural gas. The natural gas in conjunction with the molecular seal prevents air from entering into the flare stack.

The capacity of a flare is limited by the hydraulics of the relief system and the flare tip velocity. As required by 40CFR60 Subpart A, the flare tip velocity should be maintained below 400 ft/sec. The current maximum loads to the flare are 788,800 lb/hr (@ MW = 17.8) during a total refinery power failure, 860,000 lb/hr (@ MW = 73.6) during an LSFO power shortage, and 960,000 lb/hr (@ MW = 105) during a reflux failure at the No. 4 Crude Unit. The V-4540 fuel mix drum will not vent to the flare in either of these cases so the maximum load to the flare is not impacted by the connection of the new emergency PRVs. The subject PRVs will only open during a blockage (such as a closed valve) on the fuel mix drum exit line. According to Chevron, the valve on this

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exit line will fail open when power is lost so the PRVs will not open during a power loss. The maximum flow from the PRVs is estimated to be 24,000 lb/hr (12.5 mmscfd @ avg. fuel gas MW of 17.5).

The estimated maximum velocity at the worst case load of 788,000 lb/hr and a tip exit diameter of 68 inches, the tip velocity is calculated to be 229 ft/sec, which is under the maximum allowable rate of 400 ft/sec.

$$Velocity = \left(\frac{(FlowRate lb/hr)(379 scf/lb - mole)(Temperature at Flare R)}{(MW)(TipFlowArea ft^2)(3600 sec/hr)(Temperature Standard R)} \right)$$

$$Velocity = \left(\frac{(788,000 lb/hr)(379 scf/lb - mole)(659 R)}{(17.8)(25.2 ft^2)(3600 sec/hr)(532 R)} \right) = 229 \text{ ft/sec}$$

The smokeless capacity of the flare varies depending on the properties of the flared stream. Based on the maximum continuous steam flow of 50,000 lbs/hr of steam, actual smokeless burning capacity varies from about 280,000 lb/hr (0.18 lb steam to 1 lb gas) to about 100,000 lb/hr (0.49 lb steam to 1 lb gas).


Each of the headers in the relief header system is purged with natural gas. The total purge natural gas flow through the relief header system is about 5000 scfh (.12 mmscfd). There is no expected increase in the amount of purge natural gas through the relief header system since the new PRDs are being connected to existing headers such that the current purge gas flow will still be adequate to purge the entire header system. During normal operation of the system, the relief header purge gas will be captured by the LSFO VRS. The flare is equipped with 4 pilots with an average total combined natural gas flow of 710 scfh (.017 mmscfd). The flare stack also has a continuous purge natural gas flow to prevent air from entering the stack. The maximum flare purge gas flow is 1450 scfh (.035 mmscfd).

CALCULATIONS

The criteria air pollutant (CO, NO_x, PM₁₀, SO₂, and VOC) and toxic air contaminant emissions for each of the new and modified permit units are contained in this section. These estimates include emissions for non-emergency operating conditions. Emissions from emergency events are not included since they cannot be accurately anticipated and estimated.

Criteria Air Pollutant Emission Estimates

The following table contains a summary of the type of criteria pollutant emissions that are emitted from each of the permit units that are included in this evaluation. A shaded square in this table indicates that the permit unit does not generate the subject criteria pollutant.

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Permit Unit	CO	NO _x	PM ₁₀	SO _x	VOC
V-4540 Fuel Drum					Fugitive (1)
LSFO Flare	Comb.(2)	Comb. (2)	Comb. (2)	Comb. (2)	Fugitive & Comb.
LSFO VRS					Fugitive (1)

- 1.) Fugitive – emissions due to leakage from fugitive components such as valves, flanges/ connectors, pumps, compressors, process drains, etc.
- 2.) Comb. – emissions from combustion of natural gas purge and pilot gas.

Fugitive VOC Emissions

The subject permit units contain fugitive components (valves, pumps, connectors, etc.). Fugitive components that handle gases or liquids that contain VOCs may periodically leak VOC containing gas or liquid to the atmosphere. VOC emissions for these fugitive components are estimated by multiplying the total number of each fugitive component type by an appropriate emission factor. Baseline (pre-modification) emission estimates are based on a count of all of the existing fugitive components in the permit unit, which handle VOC containing liquids or gases. The post-modification count accounts for all of the fugitive components that are removed from and added to the permit unit as a result of the proposed modifications to that unit. The emission factors that are utilized are standard emission factors for fugitive components at refineries that comply with the inspection and monitoring requirements of District Rule 1173. These factors were originally developed for estimation of fugitive component VOC emissions for the CARB Reformulated Fuels projects that were performed at the refineries in the South Coast Basin.

As seen in the table below, there is no change in the fugitive VOC emissions for the LSFO VRS and flare since there are no fugitive components being added or removed from these permit units. There is a net decrease in fugitive VOC emissions for the Cogen Fuel Mix Drum permit unit since gas leakage from the 2 PRVs will be controlled by the LSFO VRS following the proposed connections of the PRVs into the LSFO relief header. The detailed fugitive component counts and VOC emissions estimates for the Cogen Fuel Mix Drum, LSFO flare and LSFO VRS are contained in [Appendix B, C, and D, respectively](#).


Estimated Pre- and Post-Modification VOC Emissions from Fugitive Components on a Permit Unit Basis

Permit Unit	Estimated VOC Emissions (lb/day)(1)		Change in VOC Emissions	
	Pre-Mod	Post-Mod	(lb/day)(1)	(lb/year)
Cogen Plant Fuel Mix Drum	17.50	11.36	- 6.1	- 2213
LSFO Flare	25.94	25.94	0	0
LSFO VRS	36.04	36.04	0	0
Total			- 6.1	- 2213

(1) 30 day average = annual VOC emissions / 360

LSFO Flare

This section contains an estimate of criteria pollutant emissions from non-emergency operation of the LSFO Flare. These non-emergency emissions are from the combustion of pilot and flare

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purge gas streams to the flare. The total flow of pilot gas and flare purge gas is 2160 scfh (.052 mmscfd). Criteria pollutant emissions from the combustion of gases generated from process upsets or equipment malfunctions are not included in the Regulation XIII emission estimates. The estimated criteria pollutant emissions from the combustion of the pilot and flare purge gas streams in the LSFO Flare is shown in the table below. The estimate utilizes District AER/Rule 1118 emission factors for natural gas combustion. Note that the proposed connection of new PRDs does not cause any increase in the normal emissions from the flare since there is no change in the amount of pilot gas, purge gas, or fugitive components.

LSFO Flare: Estimated Emissions from Combustion of Pilot/Purge Gas

Pollutant	Total Pilot/Purge Gas (MMscf/day)	Emission Factor (lb/MMscf)	Emissions (lb/day)	Emissions (lb/day)(1)	Emissions (lb/yr)
NO _x	0.052	130	6.76	6.85	2467
SO _x	0.052	0.83	0.04	0.04	15
CO	0.052	35	1.82	1.85	664
PM ₁₀	0.052	7.5	0.39	0.40	142
VOC	0.052	7	0.36	0.37	133

30-day average emissions = daily emissions x 365 / 360

Total VOC emissions for the flare are 26.3 lb/day including the 25.94 lb/day from fugitive components and the 0.37 lb/day from combustion of pilot and purge gas.

Toxic Air Contaminant (TAC) Emissions

For District Rule 1401, a health risk assessment (HRA) must be performed for each individual permit unit for which there is an increase in TACs. Since there is a decrease in the estimated emission of VOCs with the proposed connection of the two PRDs into the LSFO VRS, there will also be a decrease in the estimated emission of TACs during normal operation of the subject permit units. Therefore, a HRA is not required.


RULE COMPLIANCE REVIEW:

California Environmental Quality Act (CEQA)

The California Environmental Quality Act (CEQA), Public Resources Code Section 21000 et seq., requires that the environmental impacts of proposed “projects” be evaluated and that feasible methods to reduce, avoid or eliminate significant adverse impacts of these projects be identified and implemented. According to the District’s CEQA Guidelines, the net emission increase thresholds for significant effect are:

ROG: 55 lb/day
 PM₁₀: 150 lb/day
 CO: 274 lb/day

CEQA analysis is not required for the proposed modification since there is no increase in the emissions of any of these criteria air pollutants and there are no other significant

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environmental impacts. On the 400-CEQA form, Chevron marked “No” to all of the additional criterion that may trigger CEQA. For these reasons, CEQA does not apply.

Rule 212: Standards for Approving Permits

212(c)(1): Public notice is required for a project if any of the modified permit unit(s) are located within 1000 feet of a school. Public notice is not required under this clause since none of the permit units to be modified under this project are located with 1000-foot of a school. The nearest school to any of the subject permit units is the St. Anthony Catholic School, which is approximately 1670 ft. from the LSFO VRS.

212(c)(2): Public notice is required for any “new or modified facility”, which has on-site emission increases exceeding any of the daily maximums specified in subdivision (g) of Rule 212. The proposed connection of the V-4540 PRDs to the LSFO VRS/Flare does not cause an increase in the emissions of any criteria air pollutants so there is no exceedance of the following net emission increase thresholds that are specified in 212(g):

CO: 220 lb/day
NOx: 40 lb/day
ROG: 30 lb/day
PM10: 60 lb/day
SOx: 30 lb/day

212(c)(3): Public notice is required for any new or modified permit units that have an increase in toxic air contaminants that results in an increase of maximum individual cancer risk (MICR) of more than one in a million (1×10^{-6}) during a lifetime (70 years). There is no increase in MICR so public notice is not required.

212(g): 212(g) specifies that any new or modified sources subject to Regulation XIII which undergo construction or modifications resulting in an emissions increase exceeding any of the daily maximum emission thresholds (listed in the table above) will require notification. From Regulation XIII (Rule 1302), the definition of “Source” is any permitted individual unit, piece of equipment, article, machine, process, contrivance, or combination thereof, which may emit or control an air contaminant. This includes any permit unit at any non-RECLAIM facility and any device at a RECLAIM facility.


Public notice is not required under this clause since none of the modified sources included in this evaluation have emission increases that exceed the 212(g) thresholds.

Regulation IV - PROHIBITIONS

Rule 401: Visible Emissions

This rule specifies that a person shall not discharge emissions from a source for a period or periods aggregating more than three minutes in any one hour which are as dark or darker in shade as that designated No. 1 on the Ringelmann Chart or emissions of such opacity that it obscures an observers view to an equal or greater level. This is equivalent to opacity of 20%.

Fugitive Components: Visible emissions are not expected from any of the new fugitive components installed under this project. Connection of the emergency PRDs to the LSFO VRS/Flare will reduce the amount of fugitive emissions.

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LSFO Flare: Gas releases to this flare are minimized since it is equipped with a vapor recovery system to capture all normal releases and a portion of the emergency releases from PRDs. The Chevron refinery has been relatively effective at minimizing flaring events. As discussed later in the evaluation of District Rule 1118, SO_x emissions from Chevron's flares during 2006 through 2009 were well below the Rule 1118 SO_x performance targets. Under a recently completed project, the capacity of the LSFO VRS was increased by 6 mmscfd through replacement of the three existing vapor recovery compressors with larger compressors.

As discussed in the *Process Description* section, the subject PRVs will not open during the largest flaring events such as a total refinery power failure, LSFO power shortage, or reflux failure at the No. 4 Crude Unit. The outlet valve on the mix drum fails in the open position during a loss of power to the valve so the PRVs will not open if power is lost for any reason. The PRVs are only expected to open as a localized event that causes a blockage of the valve on the line to the valve. As discussed in the *Process Description* section, the maximum flow from the PRVs on the fuel mix drum is estimated to be 24,000 lb/hr, which is well below the smokeless capacity of the LSFO Flare of 100,000 – 240,000 lb/hr. For releases up to the smokeless capacity of the flare, smoking will occur only during a short transitory period while the steam injection system adjusts to the load being sent to the flare. Also, it is expected that some of the gas will be captured by the LSFO VRS.

Emergency situations such as a loss of power are covered by the "Breakdown Provisions" of Regulation 430. If the emergency qualifies as a "Breakdown" and Chevron complies with the requirements of 430(b)(3)(A), any smoking during an emergency will not be a violation of this rule.

Rule 402: Nuisance

Cogen Plant Fuel Gas Mix Drum Refinery fuel gas contains low concentrations of odorous reduced sulfur and hydrocarbon compounds. Connection of the emergency PRDs to the LSFO VRS/Flare will reduce the amount of refinery fuel gas that is leaked or vented to the atmosphere. Therefore, the proposed modifications will reduce the nuisance potential of this equipment.


LSFO VRS and Flare: There is no record of nuisance complaints for the LSFO Flare over the last three year period. The flare is equipped with steam injection to minimize the nuisance potential of the flare. Connection of the new PRVs to the VRS/flare is not expected to cause a significant increase in the nuisance potential.

Rule 404: Particulate Matter - Concentration

This rule sets concentration limits for total PM (solid and condensable) emissions. The rule limit varies based on the quantity of exhaust gas (dry basis) discharged from a source.

Cogen Plant Fuel Gas Mix Drum and LSFO VRS: Emissions to the atmosphere will be in the form of gaseous leakage from fugitive components. No PM emissions are expected.

LSFO Flare: PM emissions from the normal operation of the LSFO flare is estimated using the District AER (and Rule 1118) emission factor (EF) of 7.5 lb/MMscf of natural gas combusted. An "F" factor of 8710 scf of flue gas per MMBtu per hour of natural gas combustion is believed to provide a reasonable estimate of the exhaust gas flow rate for the combustion of pilot and

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purge natural gas in the flare. The calculation of the PM concentration for the exhaust gas from normal operation of the flare is shown below.

$$PM = \left(\frac{7.5lbPM}{MMscfNG} \right) \left(\frac{scfNG}{1050BTU} \right) \left(\frac{MMBtu}{8710scffluegas} \right) \left(\frac{7000grain}{lb} \right) = 0.006 \text{ grain/dscf}$$

The estimation of the exhaust gas flow for the LSFO flare is shown below.

$$LSFO \text{ Flare Exhaust Rate} = \left(\frac{2160scfNG}{hour} \right) \left(\frac{1050Btu}{scgNG} \right) \left(\frac{8710scffluegas}{1,000,000Btu} \right) \left(\frac{hour}{60 \text{ min}} \right) = 330 \text{ dscfm}$$

From Table 404(a) in Rule 404, the PM limit for exhaust gas flows below 883 dscfm is 0.196 gr/dscf. Even at high levels of excess O₂, the flue gas flow rate should be below 883 dscfm. The estimated PM concentration of 0.006 gr/dscf is well below the Rule 404 limit of 0.196 gr/dscf. Compliance with this rule is expected.

Rule 405: Solid Particulate Matter – Weight

This rule sets solid PM mass emission limits for the processing of solid materials. It is not applicable to combustion sources such as the LSFO Flare. None of the sources covered under this evaluation are subject to the requirements of this rule.

Rule 407: Liquid and Gaseous Air Contaminants

This rule contains the following emission limits:


- Carbon monoxide (CO) - 2,000 ppmv (dry; 15 minute average) [407(a)(1)]
- Sulfur Compounds – 500 ppmv (calculated as SO₂; 15 minute average [407(a)(2)(B)]

CO Limit

LSFO Flare: According to R407(b)(3), the provisions of this rule shall not apply to emissions from emergency venting due to equipment failure or process upset. During normal operation, all vent gases are captured by the VRS so only pilot and purge gas are being combusted in the flare. Compliance with the 2000 ppmv CO limit is expected during normal operation of the flare.

Sulfur Compound Limit:

Cogen Plant Fuel Gas Mix Drum and LSFO VRS - The refinery fuel gas handled in the fuel mix drum contains low concentrations of reduced sulfur compounds. The vapor recovered in the LSFO VRS contains higher concentrations of reduced sulfur compounds. However, the only emission of refinery fuel gas or LSFO VRS vapors to the atmosphere will be through leaks in fugitive components. These leak emissions are not subject to the sulfur compound limit of Rule 407.

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LSFO Flare: As discussed in more detail in the analysis of RECLAIM requirements, flares are exempt from RECLAIM. Therefore, the flare is subject to the sulfur compound limit of Rule 407 during normal operation of the flare. As discussed above, the provisions of this rule do not apply to emissions from the emergency venting from equipment failure or process upset. Compliance with the 500 ppmv sulfur compound limit is expected during normal operation of these flares, which includes the combustion of pilot and purge natural gas flows to the flare. This flare is only expected to be challenged with a significant amount of high sulfur vent gases during equipment malfunctions or process upsets. Compliance with this rule is expected.

Rule 409: Combustion Contaminants

This rule contains a limit on combustion contaminants from the combustion of fuel of 0.23 gram per cubic meter (0.1 grain per cubic foot) of flue gas (15 minute avg. at 12% CO₂). In Rule 102, combustion contaminants are defined as “are particulate matter discharged into the atmosphere from the burning of any kind of material containing carbon in a free or combined state”.

As shown in the evaluation of Rule 404, the estimated PM emissions from the combustion of natural gas in the LSFO Flare is 0.006 gr/dscf, which is well below the limit of this rule. Compliance with the requirements of this rule is expected during normal operation of the flare.

Regulation IX - NEW SOURCE PERFORMANCE STANDARDS (NSPS)


Subpart A – General control device requirements (40CFR60.18).

40CFR60.18 of Subpart A contains general requirements for control devices used to comply with applicable subparts of parts 60 and 61. The control device requirements of NSPS Subpart A include:

60.18(c)(1): “Flares shall be designed for and operated with no visible emissions as determined by the methods specified in paragraph (f), except for periods not to exceed a total of 5 minutes during any 2 consecutive hours.”

As stated in 60.11(c), the “opacity standards set forth in this part shall apply at all times except during periods of startup, shutdown, malfunction, and as otherwise provided in the applicable standard”. Chevron is required to meet the requirement for operation of the flare with no visible emissions except for periods not to exceed a total of 5 minutes during any 2 consecutive hours at all times except startup, shutdown, or malfunction as defined in Subpart A. Compliance with this requirement is expected since the LSFO Flare only combusts pilot and purge natural gas during normal operation and is equipped with a water seal and VRS.

60.18(c)(2): “Flares shall be operated with a flame present at all times, as determined by the methods specified in paragraph (f).” (f)(2) states that “the presence of a flare pilot flame shall be monitored using a thermocouple or any other equivalent device to detect the presence of a flame.” Chevron utilizes a thermocouple (with an infrared detector as a backup) to monitor the existence of a flame. Condition D12.14 for each of the flares requires that “operator shall install and maintain a(n) thermocouple or any other equivalent device to accurately indicate the presence of a flame at the pilot light. The operator shall also install and maintain a device to continuously record the parameter being measured.” Chevron has the monitoring and recording systems in place to comply with the requirements of this section. Continued compliance is expected.

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60.18(c)(4)(ii): Steam-assisted and non-assisted flares designed for and operated with an exit velocity, as determined by the methods specified in paragraph (f)(4), equal to or greater than 18.3 m/sec (60 ft/sec) but less than 122 m/sec (400 ft/sec) are allowed if the net heating value of the gas being combusted is greater than 37.3 MJ/scm (1,000 Btu/scf). The net heating value of the gases that would be combusted in these flares is greater than 1000 btu/scf so an exit velocity of less than 400 ft/sec is required. As shown in the “Process Description” section of this evaluation, the exit velocity for the maximum estimated load to the flare is 229 ft/sec.

60.18(c)(6): Flares used to comply with this section shall be steam-assisted, air-assisted, or non-assisted. The LSFO Flare is steam assisted.

60.18(e): Flares used to comply with provisions of this subpart shall be operated at all times when emissions may be vented to them. Compliance with this requirement is expected.


Subpart J -- Standards of Performance for Petroleum Refineries

This NSPS is applicable to the following affected facilities in petroleum refineries:

- Fluid Catalytic Cracking Unit Catalyst Regenerators
- Fuel Gas Combustion Devices
- All Claus Sulfur Recovery Plants (SRPs)(except Claus Plants of 20 long tons per day (LTD) or less

The LSFO Flare meets the NSPS Subpart J definition of a fuel gas combustion device so it would be subject to this NSPS if it was constructed, reconstructed, or modified after June 11, 1973 but before May 14, 2007. The flare was not constructed, reconstructed, or modified within the specified time period but it did become subject to this NSPS under Consent Decree No. C 03-04650 CRB (CD), which was filed in U.S. District Court in San Francisco on October 16, 2003 and approved by a US District Court Judge on June 28, 2005. This Consent Decree is the result of a settlement between Chevron and EPA over alleged violations of the certain Clean Air Act and CERCLA/EPCRA provisions including the New Source Performance Standards. Under the terms of this CD, all of the flares at the Chevron Refinery, with the exception of the SMR and SNR Hydrogen Plant ground flares, will become subject to NSPS Subpart J according to the schedule specified in the CD. Under the schedule in the CD, the LSFO Flare became subject on December 31, 2008.

This regulation has a limit of 160 ppm H₂S for any fuel gas combusted in the flares. The combustion in a flare of process upset gases or fuel gas that is released to the flare as a result of relief valve leakage or other emergency malfunctions is exempt from this standard. A process upset gas is defined as “any gas generated by a petroleum refinery process unit as a result of start-up, shutdown, upset, or malfunction. The system is designed such that any normal plant venting or blowdowns are handled by the combination of the flare water seal and LSFO VRS. It is expected that only emergency (upset or malfunction) venting that exceeds the capacity of the LSFO VRS will go to the LSFO Flare. The permit for the flare is tagged with condition H23.44 to denote the applicability of this regulation. Compliance with the requirements of this regulation is expected.

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Subpart Ja -- Standards of Performance for Petroleum Refineries for Which Construction, Reconstruction, or Modification Commenced After May 14, 2007.

This NSPS is applicable to the following affected facilities in petroleum refineries which were constructed, reconstructed, or modified after May 14, 2007:

- Fluid Catalytic Cracking Unit Catalyst Regenerators,
- Fluid Coking Units,
- Delayed Coking Units,
- Fuel Gas Combustion Devices (except flares), and
- Claus Sulfur Recovery Plants (SRPs)

It is applicable to flares that were constructed, reconstructed, or modified after June 24, 2008.

The LSFO flare has not been reconstructed or modified since June 24, 2008. Connection of new PRDs to the subject flare is not considered a modification of the flare since there is no increase in SO_x emissions from the flare during normal operation. During normal operation, the only vent gases from the new PRDs will be due to leakage. All of this gas is expected to be captured by the VRS. This flare is not subject to this NSPS.

Subpart GGG—Standards of Performance for Equipment Leaks of VOC in Petroleum Refineries for which Construction, Reconstruction, or Modification Commenced After January 4, 1983, and on or Before November 7, 2006 and Subpart GGGa—Standards of Performance for Equipment Leaks of VOC in Petroleum Refineries for which Construction, Reconstruction, or Modification Commenced After November 7, 2006


The following are affected facilities under these subparts:

- Compressors
- The group of all the equipment within a process unit.

Equipment is defined as “each valve, pump, pressure relief device, sampling connection system, open-ended valve or line, and flange or other connector in VOC service”. From Subpart VVa (as referenced from GGGa), the definition of “*in VOC service*” is that “the piece of equipment contains or contacts a process fluid that is at least 10 percent VOC by weight”.

Modification is defined in 40CFR60 Subpart A (§60.2) as “any physical change in, or change in the method of operation of, an existing facility which increases the amount of any air pollutant (to which a standard applies) emitted into the atmosphere by that facility or which results in the emission of any air pollutant (to which a standard applies) into the atmosphere not previously emitted.”

Cogen Plant Fuel Mix Drum - This permit unit was constructed in 1968 and has not been modified since original construction. The proposed connection of two PRVs to the LSFO VRS/Flare is not a modification under NSPS GGGa since there is not an increase in VOC emissions. Therefore, this permit unit is not subject to the requirements of either of these regulations.

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LSFO VRS – This permit unit is currently subject to requirements of NSPS GGG. “Fugitive Emissions, Miscellaneous” device number D3679 in the facility permit is tagged with condition H23.19, which specifies the applicability of this regulation.

The fugitive components in this permit unit are also subject to the requirements of 40CFR63 Subpart CC. According to 63.640(p), fugitive component that are subject to both 40CFR63, Subpart CC and an equipment leak standard in 40 CFR parts 60 (NSPS) or 63 (NESHAPS) are required only to comply with the provisions of Subpart CC. Compliance with the requirements of 40CFR63 Subpart CC is discussed later in this evaluation.

There are no components being added or removed under the current project so the LSFO VRS will not become subject to NSPS GGGa.

LSFO Flare– This flare is not a process unit. Therefore, the fugitive components in the flare permit unit are not subject to the requirements of these regulations.

40CFR60: Subpart QQQ: Standards of Performance for VOC Sources from Petroleum Refinery Wastewater Systems

This regulation is applicable to a facility located in petroleum refineries for which construction, modification, or reconstruction commenced after May 4, 1987. The following are separate affected facilities under this regulation:

- An individual drain system (all process drains connected to the first common downstream junction box, together with their associated sewer lines and junction boxes, downstream to the receiving oil-water separator)
- An oil-water separator
- An aggregate facility (individual drain system together with ancillary downstream sewer lines and oil-water separators)


The subject permit units are not currently subject to the requirements of this regulation. Chevron is not proposing to install any new drains. Therefore, the subject permit units will not become subject to this regulation.

Regulation X - NATIONAL EMISSION STANDARD FOR HAZARDOUS AIR POLLUTANTS (NESHAPS)

40CFR61: Subpart FF: National Emission Standard for Benzene Waste Operations

Chevron is subject to the control requirements of this regulation since the Total Annual Benzene (TAB) for the refinery is above the 10 Mg/yr threshold. This regulation contains standards for storage tanks, surface impoundments, containers, individual drain systems, oil-water separators, treatment processes, and closed vent systems/ control devices.

Compliance with the requirements of this regulation will not be impacted by this project because there is no benzene waste related processing, treating or control equipment being installed, removed or modified.

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Subpart CC: National Emission Standards for Hazardous Air Pollutants from Petroleum Refineries

This subpart applies to petroleum refining sources and related emission sources that are specified in section 63.640 (c)(5) through (c)(7) (e.g. miscellaneous process vents (except for FCCU, SRU, and CRU vents), storage vessels, wastewater stream, equipment leaks, gasoline loading racks, marine vessel loading, etc.) that are located in a major source and emit or have equipment contacting one or more of the hazardous air pollutants (HAPs) listed in Table 1 of this subpart. This subpart took effect on August 18, 1998 and was last amended on April 25, 2001.

Applicability for Equipment Leaks: The equipment leak standards for existing sources as specified in 63.648 are applicable to fugitive components that are “in organic hazardous air pollutant service”. In “organic hazardous air pollutant service” is defined as a piece of equipment that either contains or contacts a fluid (liquid or gas) that is at least 5% by weight of total organic HAPs as determined according to 63.180(d).

Cogen Plant Fuel Gas Mix Drum – None of the streams in this permit unit contain at least 5% by weight total organic HAP content. Therefore, none of the fugitive components in this permit unit are subject to this regulation.


LSFO VRS and LSFO Flare – Both of these permit units have existing fugitive components that are subject to this regulation. The “fugitive emissions, miscellaneous” device, which represents the fugitive components in a permit unit, for each of these permit units is tagged with “HAP: 40CFR 63 Subpart CC, #5A, 6-23-2003” to denote that this permit unit contains some fugitive components that are subject to this regulation. As mentioned previously, no new fugitive components are being installed in either permit unit.

This regulation refers to the fugitive component monitoring requirements of NSPS Subpart VV and NESHAP Subpart H with exceptions that are specifically noted in the regulation. In general, the equipment leak inspection and monitoring requirements of District Rule 1173 are more stringent than this regulation but pertinent requirements of this regulation have been incorporated into Chevron’s Inspection and Monitoring (I&M) Program for fugitive emissions. It is expected that Chevron will comply with the inspection, maintenance, and record keeping requirements of this rule.

Applicability for Miscellaneous Process Vents: *Miscellaneous process vent* is defined as “a gas stream containing greater than 20 parts per million by volume organic HAP that is continuously or periodically discharged during normal operation of a petroleum refining process unit. Miscellaneous process vents include gas streams that are discharged directly to the atmosphere, gas streams that are routed to a control device prior to discharge to the atmosphere, or gas streams that are diverted through a product recovery device prior to control or discharge to the atmosphere”.

The definition of a *miscellaneous process vent* at 40CFR63.641 specifies a number of vent streams that are not considered to be *miscellaneous process vents*, which are subject to the requirements of this rule. Some of the streams that are included in this list of exempt streams are:

- Gaseous streams routed to a fuel gas system
- Relief valve discharges

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- “Episodic or nonroutine releases such as those associated with startup, shutdown, malfunction, maintenance, depressuring, and catalyst transfer operations.
- Sulfur plant vents

The discharge streams from the subject pressure relief valves are exempt streams that are not subject to the miscellaneous process vent requirements of this regulation.

Regulation XI: SOURCE SPECIFIC STANDARDS

Rule 1118: Emissions from Refinery Flares

Background

This rule was adopted on February 13, 1998 and subsequently amended on November 4, 2005. It applies to all gas flares used at petroleum refineries, sulfur recovery plants and hydrogen production plants. The LSFO Flare is subject to the requirements of this rule as an emergency service flare. The purpose of Rule 1118 as adopted in 1998 was to monitor and gather data on refinery flares for evaluation of the need of additional controls to minimize flaring events. The primary requirements of 1998 version were submission and approval of a monitoring plan [1118(c)(1)], monitoring of release events, and quarterly reporting of monitoring results. The remainder of this section contains an evaluation of the requirements of the current version of this rule.

Current Requirements

Flare Pilot [1118(c)(1)(A)] - Maintain a pilot flame present at all times a flare is operational. The LSFO Flare is equipped with a thermocouple to monitor the existence of the pilot light.


Annual Leak Survey [1118(c)(1)(C)] - Conduct an annual acoustical or temperature leak survey of all pressure relief devices connected directly to a flare and repair leaking pressure relief devices no later than the next turnaround. The survey shall be conducted no earlier than 90 days prior to the scheduled process unit turnaround. This requirement is not applicable since the PRDs for the subject LSFO VRS/Flare are not connected directly to the flare. The water seals prevent any PRD leakage from flowing to the flares.

Specific Cause Analysis [1118(c)(1)(D)] - Conduct a Specific Cause Analysis for any flare event, excluding planned shutdown, planned startup and turnarounds, with emissions exceeding either:

- 100 pounds of VOC;
- 500 pounds of sulfur dioxide;
- 500,000 standard cubic feet of vent gas combusted.

This analysis must be submitted to the District within 30 days of the event unless an extension is granted [1118(i)(3)]. Compliance with this analysis and reporting requirement is expected.

Relative Cause Analysis [1118(c)(1)(E)] - Conduct an analysis and determine the relative cause of any other flare events where more than 5,000 standard cubic feet of vent gas are combusted. When it is not feasible to determine relative cause, state the reason why it was not feasible to make the determination. According to Chevron, reports of these analysis are contained in their quarterly reports using a code system developed by the District. For example, flaring due to equipment failure is assigned a District Relative Cause Code of 3.

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Flare Inquiry Phone Service [1118(i)(1)] - Provide a 24 hour telephone service for access by the public for inquiries about flare events Chevron's 24 hour Community Hotline number is (310) 615-5342. This number is listed on the District's web site.

Notification of Unplanned Flare Events [1118(i)(2)] - Notify the Executive Officer by telephone within one hour of any unplanned flare event with emissions exceeding either 100 pounds of VOC or 500 pounds of sulfur dioxide, or exceeding 500,000 standard cubic feet of flared vent gas. Compliance with this notification requirement is expected.

Notification of Planned Flare Events [1118(i)(4)] - Notify the District at least 24 hours prior to the start of a planned flare event with emissions exceeding either 100 pounds of VOC or 500 pounds of sulfur dioxide, or 500,000 standard cubic feet of combusted vent gas. These notifications are made through the District's Flare Event Notification web page. A record of all notifications can be accessed through the web page.


Quarterly Report [1118(i)(5)] - Submit a quarterly report in an electronic format approved by the District within 30 days after the end of each quarter. Chevron has submitted all required quarterly reports. Continued compliance with this requirement is expected.

Color Video Monitors [1118(g)(7)] - Monitor all flares for visible emissions using color video monitors with date and time stamp, capable of recording a digital image of the flare and flame at a rate of no less than one frame per minute. According to Chevron, the required cameras and recorders have been installed and are recording images at a rate of once per minute.

Flare Monitoring and Recording Plan [1118(g)(7)] - By June 30, 2006, submit a revised Flare Monitoring and Recording Plan, which shall include all information specified at 1118(f)(3) [1118(f)(1)(A)]. They must comply with the existing plan until a revised plan is approved. A facility must start monitoring and recording in accordance with the Revised Flare Monitoring and Recording Plan within 6 months after the plan is approved [1118(g)]. Chevron submitted this plan (AN 458606) on June 30, 2006. Chevron has also submitted two addendums to the plan.

The rule contains monitoring and recording requirements for flares at 1118(g)(3). The requirements for emergency and general service flares are summarized in the following table:

Operating Parameter	Monitoring and Recording Requirement	
	Effective until June 30, 2007	Effective July 1, 2007
Gas Flow	Measured and Recorded Continuously with Flow Meter(s) and/or On/Off Flow Indicator(s)	Measured and Recorded Continuously with Flow Meter(s) and/or On/Off Flow Indicator(s)
Gas Higher Heating Value	One Daily Representative Sample for a Flare Event and a Representative Sample for Each Sampling Flare Event; or Continuously Measured and Recorded with a Higher Heating Value Analyzer	Continuously Measured and Recorded with a Higher Heating Value Analyzer
Total Sulfur Concentration	One Daily Representative Sample for a	Semi-Continuously Measured and Recorded with a Total

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	Flare Event and a Representative Sample for Each Sampling Flare Event; or Semi-Continuously Measured and Recorded with a Total Sulfur Analyzer	Sulfur Analyzer
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As discussed in the “Compliance Record Review” section, all of the refineries currently have been granted a variance to the 1118(g)(3) requirement for continuous and semi-continuous monitoring of HHV and TSC, respectively. Under the increments of progress for Chevron’s variance (Case No. 8313-43) was required to install and test the TSC and HHV analyzers on the LSFO flare by February 4, 2010. According to Chevron, the subject analyzers have been installed and tested.

Evaluation of Options for Reduction in Flaring [1118(c)(3)] - Submit an evaluation of options to reduce flaring during planned shutdowns, startups and turnarounds, including, but not limited to slower vessel depressurization and storing vent gases. Chevron has chosen to minimize flaring through slower vessel depressurization.

Flare Minimization [1118(c)(4)] - Operate all flares in such a manner that minimizes all flaring and that no vent gas is combusted except during emergencies, shutdowns, startups, turnarounds or essential operational needs. Chevron recently upgraded the LSFO VRS compressors to assist in compliance with this requirement. Connection of the new PRVs to the LSFO VRS is not expected to impact compliance with this requirement.


Performance Targets [1118(d)] - A refinery shall minimize flare SO₂ emissions and meet the following performance targets for SO₂ emissions. Compliance with the performance targets are determined at the end of each calendar year based on the facility’s annual flare sulfur dioxide emissions normalized over the crude oil processing capacity in calendar year 2004.

- Calendar Years 2006 and 2007: 1.5 tons per million barrels of crude processing capacity
- Calendar Years 2008 and 2009: 1.0 tons per million barrels of crude processing capacity
- Calendar Years 2010 and 2011: 0.7 tons per million barrels of crude processing capacity
- Beginning in calendar year 2012: 0.5 tons per million barrels of crude processing capacity

If a refinery exceeds the performance targets for any calendar year, the owner or operator must:

- Submit a Flare Minimization Plan, and
- Pay the District mitigation fees. The rule includes a sliding fee schedule based on the relative amount of the exceedance. The rule includes a 60 day public review period for the Flare Minimization plan prior to approval of the plan.

Chevron has a total of 7 flares that are subject to this rule. The annual refinery wide flare SO₂ emissions are compared against Chevron’s SO₂ target for the years 2006 through 2010 in the table below. The annual refinery wide flare SO₂ emissions have been below the SO₂ targets during this time period. Chevrons SO₂ performance target for 2010 – 2011 will be about 67 ton/yr. The proposed connection of new PRDs to the LSFO VRS and flare is not expected to impact Chevron’s ability to achieve the current SO₂ performance target.

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Year	SO2 Emissions Target (ton/yr)	Flare SO2 Emissions (ton/yr)
2006	142.7	25.3
2007	142.7	47.8
2008	95	43.7
2009	95	4.2

H2S Limit [1118(c)(5)] - Effective January 1, 2009, a refinery shall prevent the combustion in any flare of vent gas with a hydrogen sulfide concentration in excess of 160 ppm, averaged over three hours, excluding any vent gas resulting from an emergency, shutdown, startup, process upset or relief valve leakage. The LSFO flare is tagged with condition B61.11, which specifies this H2S limit. Compliance with this requirement is expected since the LSFO VRS has adequate capacity to collect and recover all vents gases during normal operation of the permit units that vent to the VRS/Flare.

Rule 1173: Control of Volatile Organic Compound Leaks and Releases from Components at Petroleum Facilities and Chemical Plants

This rule is intended to control volatile organic compound (VOC) leaks from fugitive components at refineries, chemical plants, oil and gas production fields, natural gas processing plants, and pipeline transfer stations. It contains identification requirements, leak standards, inspection requirements, maintenance and repair requirements, and recordkeeping and reporting requirements for fugitive components.


Each of the subject permit units have fugitive components that are subject to the requirements of this rule. Chevron will be adding some new components that will be subject to this regulation and removing some components that are currently subject to this rule. Chevron has an existing fugitive emission component inspection and monitoring (I&M) program for compliance with the requirements of this rule. Where applicable, new components installed under this project will be integrated into this I&M program.

Compliance with the requirements of this rule is expected.

Rule 1176: Sumps and Wastewater Separators

The purpose of this rule is to limit VOC emissions from wastewater systems located at petroleum refineries, on-shore oil production fields, off-shore oil production platforms, chemical plants, and industrial facilities. The rule specifies requirements for wastewater sumps, separators, sewer lines, process drains, junction boxes, and air pollution control equipment.

Chevron does not propose to add, remove or modify any wastewater handling or processing equipment. Compliance with this rule is not expected to be impacted by the proposed project.

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Regulation XIII - NEW SOURCE REVIEW

Rule 1303: Requirements (December 6, 2002)

This rule allows the Executive Officer to deny a Permit to Construct for any new, modified or relocated source which results in an emission increase of any nonattainment air contaminant, any ozone depleting compound, or ammonia, unless BACT is used. This rule also requires modeling and offset (among other requirements) if there is a net increase in any nonattainment air contaminants for any new or modified source. The definition of "Source" in Rule 1302(ao) is "any permitted individual unit, piece of equipment, article, machine, process, contrivance, or combination thereof, which may emit or control an air contaminant. This includes any permit unit at any non-RECLAIM facility and any device at a RECLAIM facility."

The South Coast Air Basin (SOCAB) is designated in attainment for CO, NO_x and SO_x. The following are currently considered nonattainment air contaminants: NO_x, SO_x, PM₁₀, and VOC. VOC & NO_x are included since they are precursors for ozone. VOC, NO_x, and SO_x are included as PM-10 precursors. NO_x and SO_x emissions from RECLAIM Facilities are regulated under Regulation XX (RECLAIM). New Source Review requirements for NO_x and SO_x are specified in Rule 2005. Since gas flares are exempt from the requirements of RECLAIM, the NO_x and SO_x requirements of Reg. XIII are applicable. For CO, sources are subject to only the BACT requirement of this regulation.

1303(a)(1): Best Available Control Technology (BACT): Any new or modified source which results in an emission increase of any nonattainment air contaminant, any ozone depleting compound, or ammonia, must employ BACT for the new or relocated source or for the actual modification to an existing source. Per District policy, BACT is required for any increase in emissions that exceeds 1.0 lb per day on a maximum daily basis. BACT is not required for this project since there is not an increase in the emission of any of the criteria air pollutants.

1303(b) – The following requirements apply to any new or modified source which results in a net emission increase of any nonattainment air contaminant. These requirements are not applicable to the subject project since there is not an increase in the emission of any non-attainment air pollutants.


- 1303(b)(1): Modeling
- 1303(b)(2): Offsets
- 1303(b)(3): Sensitive Zone Requirements
- 1303(b)(4): Facility Compliance
- 1303(b)(5): Major Polluting Facilities

Regulation XIV - TOXICS AND OTHER NON-CRITERIA POLLUTANTS

Rule 1401: New Source Review of Carcinogenic Air Contaminants

Requirements – Rule 1401 contains the following requirements:

- 1) *(d)(1) MICR and Cancer Burden* - The cumulative increase in MICR which is the sum of the calculated MICR values for all toxic air contaminants emitted from the new, relocated or modified permit unit will not result in any of the following:
 - (A) an increased MICR greater than one in one million (1.0×10^{-6}) at any receptor location, if the permit unit is constructed without T-BACT;

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- (B) an increased MICR greater than ten in one million (1.0×10^{-5}) at any receptor location, if the permit unit is constructed with T-BACT;
- (C) a cancer burden greater than 0.5.
- 2) (d)(2) *Chronic Hazard Index* - The cumulative increase in total chronic HI for any target organ system due to total emissions from the new, relocated or modified permit unit will not exceed 1.0 at any receptor location.
 - 3) (d)(3) *Acute Hazard Index* - The cumulative increase in total acute HI for any target organ system due to total emissions from the new, relocated or modified permit unit will not exceed 1.0 at any receptor location.

Analysis - The proposed project does not result in an increase in estimated emissions for any of the toxic air contaminants (TACs) listed in this rule. Therefore, compliance with the rule is achieved.

Regulation XVII - PREVENTION OF SIGNIFICANT DETERIORATION (PSD)

This regulation specifies that the District shall deny any permits to construct unless:

- 1) Each permit unit complies with all applicable rules and regulations of the District;
- 2) Each permit unit is constructed with BACT for each criteria air pollutant with a net emission increase; and
- 3) Each permit unit with a significant emission increase of an attainment air pollutant complies with the requirements of 1703(a)(3).

1703(a)(1) – Compliance with Applicable Rules and Regulations – As addressed elsewhere in this evaluation, compliance with applicable rules and regulations is expected.

1703(a)(2) – Best Available Control Technology – BACT is not required since the proposed project does not cause a net emission increase of any attainment air pollutants.

1703(a)(3) – Significant Emission Increase – The requirements under 1703(a)(3), which are specified below, are applicable for each significant emission increase of an attainment air contaminant at a major stationary source. These requirements are not applicable since the proposed project does not cause an increase in the emission of any air pollutants.

1703(a)(3)(A): Certification of Compliance with Federally Enforceable Emission Limits and Standards

1703(a)(3)(C): Modeling


1703(a)(3)(D): Ambient Air Quality Analysis

1703(a)(3)(E): Analysis of the Impairment to Visibility, Soil, and Vegetation

1703(a)(3)(F): Notice to EPA and FLM

Regulation XX - REGIONAL CLEAN AIR INCENTIVES MARKET (RECLAIM)

RECLAIM is a market incentive program designed to allow facilities flexibility in achieving emission reduction requirements for Oxides of Nitrogen (NO_x), and Oxides of Sulfur (SO_x). The Chevron Refinery (ID 800030) is a Cycle II RECLAIM facility. The LSFO flare is the only one of the subject permit units that emits NO_x and SO_x. However, as specified in Rule 2011(i) and Rule 2012(k), gas flares are exempt from the requirements of this regulation. The definition of a gas flare, as contained in 2011 Attachment E and 2012 Attachment F is “a combustion equipment used to prevent unsafe operating pressures in process units during shutdowns and

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startups and to handle miscellaneous hydrocarbon leaks and process upsets”. The LSFO Flare qualifies for this exemption.

Regulation XXX – TITLE V PERMITS


The initial Title V permit for the refinery was sent to Chevron on September 29, 2009 with an effective date of October 12, 2009. The permits issued for this project will be issued as a revision of the Title V permit. Permit revisions are categorized into the following four types: *administrative, minor, de minimis significant and significant*. The review and distribution requirements for each revision type are summarized in the following table.

Title V Permit Revisions: Review and Distribution Requirements

Revision Type	Permit Review and Distribution Requirements		
	EPA Review (45-day)	Public Notice (30-day)	Send Final Permit to EPA
Administrative	No	No	Yes
Minor	Yes	No	Yes
De Minimis Significant	Yes	No	Yes
Significant	Yes	Yes	Yes

As defined in Rule 3000, a minor Title V permit revision is any revision that:


- (1) does not require or change a case-by-case evaluation of: reasonably available control technology (RACT) pursuant to Title I of the federal Clean Air Act; or maximum achievable control technology (MACT) pursuant to 40 CFR Part 63, Subpart B;
- (2) does not violate a regulatory requirement;
- (3) does not require any significant change in monitoring terms or conditions in the permit;
- (4) does not require relaxation of any recordkeeping, or reporting requirement, or term, or condition in the permit;
- (5) does not result in an emission increase of RECLAIM pollutants over the facility starting Allocation plus nontradeable Allocations, or higher Allocation amount which has previously undergone a significant permit revision process;
- (6) does not result in an increase in emissions of a pollutant subject to Regulation XIII - New Source Review or a hazardous air pollutant;
- (7) does not establish or change a permit condition that the facility has assumed to avoid an applicable requirement;
- (8) is not an installation of a new permit unit subject to a New Source Performance Standard (NSPS) pursuant to 40 CFR Part 60, or a National Emission Standard for Hazardous Air Pollutants (NESHAP) pursuant to 40 CFR Part 61 or 40 CFR Part 63; and,
- (9) is not a modification or reconstruction of an existing permit unit, resulting in new or additional NSPS requirements pursuant to 40 CFR Part 60, or new or additional NESHAP requirements pursuant to 40 CFR Part 61 or 40 CFR Part 63; or,
- (10) incorporates an existing general permit, as defined in subdivision (e) of Rule 3004, and its associated requirements, into another Title V permit.

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This Title V permit revision meets all of the requirements above so it is a minor revision. Chevron has submitted Title V permit revision A/N 508903 for processing of this Title V permit minor revision, which will be sent to EPA for a 45-day review. Public notice is not required.

RECOMMENDATION:

Based on the foregoing evaluation, it is expected that the subject application will comply with all applicable District Rules and Regulations. It is recommended that, a Permit to Construct, Section H of the RECLAIM/Title V facility permit, be issued for the proposed change of permit condition.

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Appendix A: List of Chevron NOV/NCs Issued Since January 1, 2008

NOTICE NO.	NOTICE TYPE	VIOLATION DATE	STATUS	VIOLATION
P48119	NOV	1/10/2008	Closed on 11/25/08	FAILURE TO OPERATE F-105 AND F-205 ABOVE 1400 DEG F PER CONDITION B163.5 IN THE FACILITY PERMIT TO OPERATE, ID# 800030.
P48123	NOV	1/29/2008	Closed on 9/2/08	1) Discharge of air contaminants > 40% opacity into the atmosphere for more than three minutes in one hour from K-25. (2) Discharge of air contaminants > 20% opacity into the atmosphere for more than three minutes in one hour from K-25.
P48124	NOV	2/24/2008	Closed on 9/2/08	Failure to ensure all vent gases from the SNR were vented to the CO control ground flare (C4116) during the SNR startup per Administrative Condition #4 in Section# of the Permit to Operate, ID# 800030.
P52764	NOV	4/12/2008	Closed on 11/25/08	F/P 800030, PROCESS 5 SYSTEM 1 - OPERATING CONTRARY TO CONDITION S15.10
P12140	NOV	7/29/2008	Closed on 5/19/09	VOC LEAKS >50000 PPM RULE 1173 (d)(1)(B) - 9 COUNTS. 40 CFR FF 61.344(a)(1)(i)(A) MEASURABLE LEAKS FROM SEPARATOR COVER > 500 PPM - 4 COUNTS.
P12141	NOV	7/30/2008	Closed on 5/19/09	VOC LEAKS GREATER THAN 50,000 PPM - 21 COUNT VIOLATION RULE 1173(d)(1)(B)
P12142	NOV	7/31/2008	Closed on 5/19/09	OPEN ENDED LINES IN CRUDE #2 LSFO - I COUNT. 40 CFR 61.346(b)(1) PROCESS DRAIN WITHOUT WATER SEAL CONTROL.
P48721	NOV	10/2/2008	Closed on 6/18/09	1) Failure to operate refinery flare in a smokeless manner; 2) Exceeding Ringlemann 2 emissions for more than 5 minutes in one hour. (FCC Flare)
D05317	NC	4/24/2009	In Compliance	PROVIDE INFORMATION REGARDING EMERGENCY POWER CAPACITY AND PROTOCOL DURING POWER OUTAGES BY THE UTILITIES.
P48724	NOV	6/22/2009	In Compliance	EXCEEDING 20 PPMV EMISSION LIMIT ON SELECTIVE CATALYTIC REDUCTION UNIT (DEVICE C2217) ON AUXILIARY BOILER (DEVICE D2216)
D05319	NC	7/10/2009	In Compliance	PROVIDE SOURCE TEST RESULTS FOR AUXILIARY BOILER N43.
D05320	NC	1/20/2010	In Compliance	REPORT VARIOUS AND PROCESS EQUIPMENT ACCORDING TO PROCESS UNIT GUIDELINES.



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NOTICE NO.	NOTICE TYPE	VIOLATION DATE	STATUS	VIOLATION
P48725	NOV	2/23/2010	In Compliance	1) Light service leak in excess of 50,000 ppm - 1 count, (2) Leak at water separator cover exceeding 500ppm - 13 counts, (3) Equipment operating contrary to permit conditions and not in good operating condition - 2 counts.
P48726	NOV	2/23/2010	In Compliance	Equipment not in good operating condition - 3 counts.
P48727	NOV	2/23/2010	In Compliance	Light service leaks in excess of 50,000 ppm - 2 counts.
P48728	NOV	3/02/2010	In Compliance	EMISSIONS FROM WASTE SYSTEM IN EXCESS OF 500 PPM - 4 COUNTS.


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Appendix B: V-4540 Fuel Drum
Pre-Modification VOC Emission Estimate for Fugitive Components

Equipment Type	Service	No. of Sources	Controlled Emission Factors lbs/yr*	Annual ROG Emission lb/yr
Valves	HC Vapor	0	23	0
	Bellows Sealed	0	0	0
	Fuel Gas	209	12	2508
	Bellows Sealed	10	0	0
	Light Liquid	0	19	0
	Bellows Sealed	0	0	0
	Heavy Liquid	0	3	0
	Bellows Sealed	0	0	0
Flanges	Light Liquid/Vapor	472	1.5	708
	Heavy Liquid	0	1.5	0.0
Connectors	Light Liquid/Vapor	543	1.5	815
	Heavy Liquid	0	1.5	0.0
Pumps	Light Liquid (double seal)	0	104	0
	Light Liquid (sealless type)	0	0	0
	Heavy Liquid (single seal)	0	80	0
Compressors	HC Gas/Vapor	0	514	0
PRV's Heavy Liquid (To Atmosphere)		0	1,135	0
PRV's Heavy Liquid (Closed System)		0	0	0
PRV's Light Liquid/Vapor (To Atmosphere)		2	1,135	2270
PRV's Light Liquid/Vapor (Closed System)		4	0	0
Drains (with p-trap or seal pot)		0	80	0

Total Count: 1,240 Total (lb/yr) **6,301**

30-day Average
Emissions (lbs/day) **17.50**


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**Appendix B: V-4540 Fuel Drum
Post-Modification VOC Emission Estimate for Fugitive Components**

Equipment Type	Service	No. of Sources	Controlled Emission Factors lbs/yr*	Annual ROG Emission lb/yr
Valves	HC Vapor	0	23	0
	Bellows Sealed	0	0	0
	Fuel Gas	212	12	2544
	Bellows Sealed	15	0	0
	Light Liquid	0	19	0
	Bellows Sealed	0	0	0
	Heavy Liquid	0	3	0
	Bellows Sealed	0	0	0
Flanges	Light Liquid/Vapor	481	1.5	721.5
	Heavy Liquid	0	1.5	0
Connectors	Light Liquid/Vapor	548	1.5	822
	Heavy Liquid	0	1.5	0
Pumps	Light Liquid (double seal)	0	104	0
	Light Liquid (sealless type)	0	0	0
	Heavy Liquid (single seal)	0	80	0
Compressors	HC Gas/Vapor	0	514	0
PRV's Heavy Liquid (To Atmosphere)		0	1,135	0
PRV's Heavy Liquid (Closed System)		0	0	0
PRV's Light Liquid/Vapor (To Atmosphere)		0	1,135	0
PRV's Light Liquid/Vapor (Closed System)		6	0	0
Drains (with p-trap or seal pot)		0	80	0

Total Count: 1,262 Total (lb/yr) **4,088**

30-day Average
Emissions (lbs/day) **11.36**


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Appendix C: LSFO Flare
Pre & Post-Modification VOC Emission Estimate for Fugitive Components

Equipment Type	Service	No. of Sources	Controlled Emission Factors lbs/yr*	Annual ROG Emission lb/yr
Valves	HC Vapor	169	23	3887
	Bellows Sealed	103	0	0
	Fuel Gas	0	12	0
	Bellows Sealed	0	0	0
	Light Liquid	43	19	817
	Bellows Sealed	29	0	0
	Heavy Liquid	186	3	558
	Bellows Sealed	0	0	0
Flanges	Light Liquid/Vapor	637	1.5	956
	Heavy Liquid	0	1.5	0
Connectors	Light Liquid/Vapor	966	1.5	1449
	Heavy Liquid	384	1.5	576
Pumps	Light Liquid (double seal)	9	104	936
	Light Liquid (sealless type)	0	0	0
	Heavy Liquid (single seal)	2	80	160
Compressors	HC Gas/Vapor	0	514	0
PRV's Heavy Liquid (To Atmosphere)		0	1,135	0
PRV's Heavy Liquid (Closed System)		6	0	0
PRV's Light Liquid/Vapor (To Atmosphere)		0	1,135	0
PRV's Light Liquid/Vapor (Closed System)		6	0	0
Drains (with p-trap or seal pot)		0	80	0

Total Count: 2,540 Total (lb/yr) **9,339**

30-day Average
Emissions (lbs/day) **25.94**

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Appendix D: LSFO VRS
Pre & Post-Modification VOC Emission Estimate for Fugitive Components

Equipment Type	Service	No. of Sources	Controlled Emission Factors lbs/yr*	Annual ROG Emission lb/yr
Valves	HC Vapor	184	23	4232
	Bellows Sealed	334	0	0
	Fuel Gas	0	12	0
	Bellows Sealed	0	0	0
	Light Liquid	32	19	608
	Bellows Sealed	464	0	0
	Heavy Liquid	0	3	0
	Bellows Sealed	0	0	0
Flanges	Light Liquid/Vapor	2143	1.5	3215
	Heavy Liquid	0	1.5	0
Connectors	Light Liquid/Vapor	1904	1.5	2856
	Heavy Liquid	0	1.5	0
Pumps	Light Liquid (double seal)	5	104	520
	Light Liquid (sealless type)	0	0	0
	Heavy Liquid (single seal)	0	80	0
Compressors	HC Gas/Vapor	3	514	1542
PRV's Heavy Liquid (To Atmosphere)		0	1,135	0
PRV's Heavy Liquid (Closed System)		0	0	0
PRV's Light Liquid/Vapor (To Atmosphere)		0	1,135	0
PRV's Light Liquid/Vapor (Closed System)		15	0	0
Drains (with p-trap or seal pot)		0	80	0

Total Count: 5,084 Total (lb/yr) **12,973**

30-day Average
Emissions (lbs/day) **36.0**